PROC. BIOL. SOC. WASH.
105(4), 1992, pp. 693–708

NEW SPECIES AND RECORDS OF PHYLLODOCIDAE (POLYCHAETA) FROM THE CONTINENTAL SHELF AND SLOPE OFF CALIFORNIA

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Abstract.—Six new species of phyllodocid polychaetes are described from the continental shelf and slope off central California, mostly in vicinity of the Santa Maria Basin. New species include *Eteone brigitteae, E. leptotes, E. pigmentata, Lugia uschakovi, Protomystides mariaensis,* and *Sige pleijeli.* A redescription of *Sige brunnea* (Fauchald, 1972) is presented based upon new collections from off San Francisco.

In 1990, the U.S. Department of the Interior, Minerals Management Service (MMS), initiated a project to prepare a taxonomic atlas of the benthic fauna of the Santa Maria Basin and Western Santa Barbara Channel. These areas and other locations on the California continental shelf have been the site of extensive biological reconnaissance and monitoring programs that were conducted to assess the environmental resources prior to the exploration and/or development of oil and gas reserves. One of the largest polychaete families being treated in the atlas is the Phyllodocidae, where 27 species distributed in 12 genera are described and illustrated (Blake 1992). Six of these species are new to science and their descriptions are presented here. In addition, a redescription of *Sige brunnea* (Fauchald, 1972) is presented so that one of the new species, *Sige pleijeli* can be clearly distinguished. Positions and depths for the Santa Maria Basin stations are presented in Table 1. The type specimens are lodged in the National Museum of Natural History (USNM), the Los Angeles County Museum of Natural History (LACM-AHF), and Santa Barbara Museum of Natural History (SBMNH).

Systematic Account

Genus *Eteone* Savigny, 1822

Diagnosis.—Prostomium with 4 antennae; nuchal papilla present or absent; 2 pairs of tentacular cirri on first segment; second segment lacking dorsal cirri. Proboscis smooth or rugose, lacking longitudinal rows of papillae. Anal cirri short, globular to digitiform with rounded tips, no more than 4 times longer than wide.

Remarks.—*Eteone* was revised by Wilson (1988) to include three genera: *Eteone, Hypereteone* Bergström, and *Mysta* Malmgren. The genera were separated on the form of the anal cirri and the presence and location of papillae on the proboscis. *Hypereteone* was distinguished by having long tapering anal cirri that were three times as long as wide and three or more rows of papillae or heavy ridges on the proboscis. Both *Eteone* and *Mysta* were said to have short anal cirri with rounded tips. *Mysta* was distinguished from *Eteone* by having two lateral rows of papillae on the proboscis, whereas *Eteone* lacked such rows. While it is apparent that three distinct groups of species can be separated within the *Eteone*-complex of species, Pleijel (1991) did not recognize these taxa at the generic level. He was concerned that *Eteone* sensu stricto, might represent a paraphyletic assemblage defined on plesiomorphic characters. I also have doubts that three genera should be recognized. *Eteone brigitteae,* newly described in the present study (see below), has asymmetrical dorsal cirri, and is most closely allied with species that are included with *Hypereteone* (Wilson 1988). However, the anal

Table 1.—Location of soft-substrate stations in the Santa Maria Basin cited in this paper.

Station	Latitude (N)	Longitude (W)	Depth (m)
12	35°15.03′	120°57.31′	98
13	35°14.54′	120°59.77′	197
56	34°30.32′	121°01.02′	900
R-1	35°05.83′	120°49.16′	91
R-4	34°43.01′	120°47.39′	92
R-7	34°52.90′	121°10.30′	565
R-8	34°55.30′	120°45.87′	90
PJ-1	34°55.79′	120°49.91′	145
PJ-2	34°55.32′	120°49.59′	142
PJ-4	34°56.26′	120°50.24′	150
PJ-5	34°55.32′	120°50.24′	152
PJ-7	34°55.79′	120°48.60′	123
PJ-8	34°56.87′	120°49.91′	142
PJ-10	34°53.63′	120°49.91′	147
PJ-17	34°56.56′	120°48.98′	126

cirri of *E. brigitteae,* while elongate, are thick and blunt-tipped instead of tapering to a point. With these reservations in mind, I prefer to follow Pleijel (1991) in treating *Hypereteone* and *Mysta* as junior synonyms of *Eteone.*

Eteone brigitteae, new species
Fig. 1

Material examined.—California: Santa Maria Basin, off Point Sal, Sta. R-8 (holotype and paratype USNM 148680-148681).—Off San Francisco, EPA Sta. 3-12, 37°25.03′N, 123°18.00′W, 1745 m, coll. Sep 1991, 1 specimen.

Description.—A moderate sized species, up to 20.5 mm long and 0.6 mm wide anteriorly, for about 140 segments. Color in alcohol: light tan, relatively unpigmented except for some brown spots along dorsal midline. Prostomium slightly longer than wide, tapering abruptly about mid-way to anterior end, then expanding again, terminating in bluntly rounded tip bearing 4 short cirriform antennae (Fig. 1A); with one pair of dark eyes present in Santa Maria Basin specimens, lacking in San Francisco slope specimen; nuchal papilla absent.

Tentacular segment weakly separated from prostomium (Fig. 1A). Dorsal tentacular cirri short, extending posteriorly only to anterior of segment 2; second pair longer, extending to segment 3 (Fig. 1A). Second segment with setae and ventral cirrus. Each dorsal cirrus asymmetrical, especially in anterior segments, where dorsal edge curves and ventral edge is relatively straight (Fig. 1B); middle dorsal cirri longer, with less extreme asymmetry (Fig. 1C). Ventral cirri elongate, with broad basal attachment; ventral cirri of anterior segments nearly as long as podial lobes. Podial lobes with weakly developed anterior and posterior lobes, between which setae emerge. Setae number 9 to 10 per fascicle; each with finely denticulated blade and shaft with a single large rostral tooth and shorter double spike; larger tooth with several smaller teeth around base (Fig. 1D–F). Pygidium with 2 thick, elongated anal cirri, with blunt tips, each about 2.25 times as long as wide (Fig. 1G).

Remarks.—*Eteone brigitteae* is closely related to *E. fauchaldi* Kravitz & Jones (1979) from off Oregon and Washington in shelf depths, and *E. aestuarina* Hartmann-Schröder (1959) from El Salvador in shallow water estuarine habitats. All three species have elongate pygidial anal cirri, setae from segment 2, a prostomium that is longer than wide, and dorsal cirri that are more or less asymmetrical in shape. In *E. fauchaldi,* the ventral tentacular cirri are only slightly longer than the dorsal, while both *E. brigitteae* and *E. aestuarina* have ventral tentacular cirri that are at least twice as long as the dorsal. The dorsal cirri are only vaguely asymmetrical in *E. fauchaldi,* but are strongly asymmetrical in *E. brigitteae* and *E. aestuarina. E. brigitteae* differs from both *E. fauchaldi* and *E. aestuarina* in having thick, robust anal cirri that end in blunt tips instead of ones that are long, tapering, and end in pointed tips. *E. brigitteae* is also similar to *E. heteropoda* Hartman, 1951 from the eastern and Gulf coasts of the United States in having asymmetrical dor-

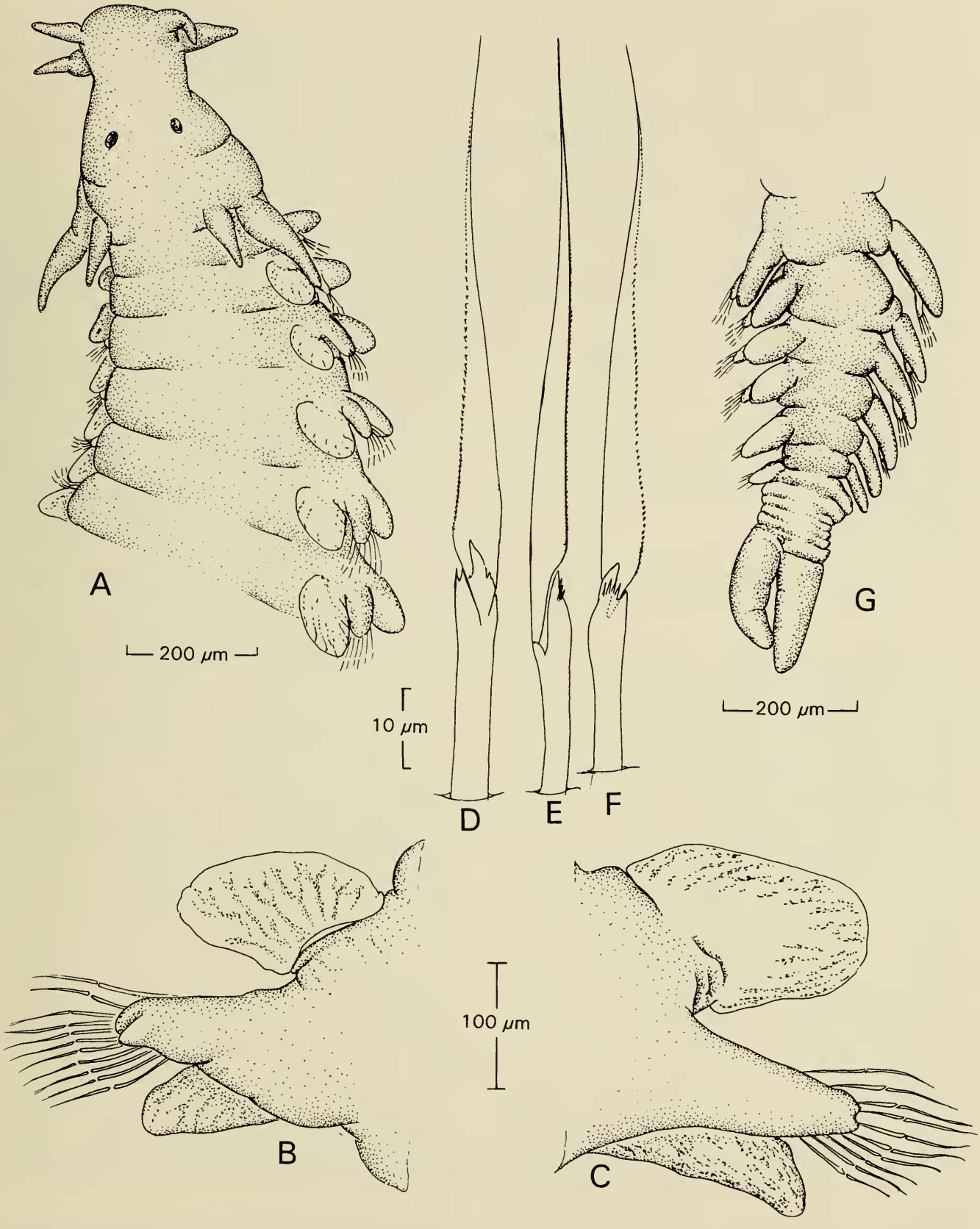

Fig. 1. *Eteone brigitteae* (USNM 148680): A, Anterior end, dorsolateral view; B, anterior parapodium, anterior view; C, middle parapodium, anterior view; D–F, setae in various views; G, posterior end, dorsal view.

sal cirri. However, in *E. heteropoda* the prostomium is distinctly wider than long instead of longer than wide, the dorsal cirri are pointed instead of broadly rounded, and the anal cirri are long and tapering instead of blunt-tipped. Specimens of *E. brigitteae* from the continental shelf (Santa Maria Basin) are indistinguishable from the specimen from the continental slope off San Francisco, except for the presence of a single pair of small eyes in the former.

Etymology.—This species is named for Dr. Brigitte Hilbig, polychaete systematist, friend, and colleague.

Distribution.—Known only from the Santa Maria Basin, in sediments having high silt content, 90 m; off San Francisco in slope depths, 1745 m.

Eteone leptotes, new species
Fig. 2

Material examined.—California: Santa Maria Basin, Sta. PJ-2 (holotype and 2 paratypes, USNM 148682-148683), PJ-7 (3 paratypes USNM 148684), PJ-8 (2 paratypes USNM 148685), PJ-10 (1 paratype LACM-AHF POLY 1607), PJ-17 (13 paratypes LACM-AHF POLY 1608), R-1 (11 paratypes SBMNH 35615) R-4 (2 paratypes LACM-AHF POLY 1609), R-7 (1 paratype, LACM-AHF POLY 1610), R-8 (100+ paratypes USNM 148686-148692).

Description.—A small, thin, threadlike species; holotype 2.8 mm long and 0.16 mm wide anteriorly for 32 setigers; paratypes up to 6.3 mm long and 0.3 mm wide for 90 setigers. Color in alcohol: white to light brown with dark brown pigment organized in distinctive pattern; pigment concentrated in individual granules or spots concentrated on dorsum, ventrum, dorsal cirri, and anal cirri.

Prostomium and first segment fused, sometimes with notch at border of tentacular segment; prostomium narrowing abruptly anterior to eyes, then tapering to rounded tip, bearing 4 subequal antennae (Fig. 2A–B); 2 dark red eyes present at border of prostomium and peristomium; each eye with clear lens surrounded by dark red pigment; nuchal papilla located posterior to eyes. Proboscis entirely smooth. Tentacular cirri short, subequal (Fig. 2A–B). Second segment bearing prominent podial lobe with setae and ventral cirrus. Each dorsal cirrus thickened, distally rounded, becoming longer, somewhat lanceolate in middle body segments (Fig. 2C); dorsal cirri of anterior and posterior segments as long as or shorter than podial lobe, in middle body segments slightly longer than podial lobe (Fig. 2C). Ventral cirri short, non-pigmented, never longer than podial lobe (Fig. 2C).

Setae numbering 4 to 6 per fascicle; all compound spinigers with expanded tip of shaft bearing 2 prongs, covered with fine spinelets (Fig. 2E–F); blade with serrated cutting edge. Pygidium bearing two short, thick anal cirri (Fig. 2D).

Remarks.—*Eteone leptotes* is most closely related to *E. filiformis* Hartmann-Schröder, described from Western Australia in 1980. Both are minute, threadlike forms, and entirely different in this regard from other known species. *Eteone leptotes* differs from *E. filiformis* in having subequal tentacular cirri instead of dorsal ones that are longer. *Eteone filiformis* appears to attain a larger size than *E. leptotes* because the three specimens described by Hartmann-Schröder (1980) are about twice as long and have more than twice as many setigers. Locally, this species was identified as *Eteone* sp. E in the MMS monitoring programs in the Santa Maria Basin.

Etymology.—The epithet is derived from the Greek, *leptos,* for thin or slender, referring to the slender, threadlike nature of the body of this worm.

Distribution.—Central California continental shelf, 90–150 m.

Eteone pigmentata, new species
Fig. 3

Material examined.—California: Santa Maria Basin, Sta. PJ-7 (holotype, USNM

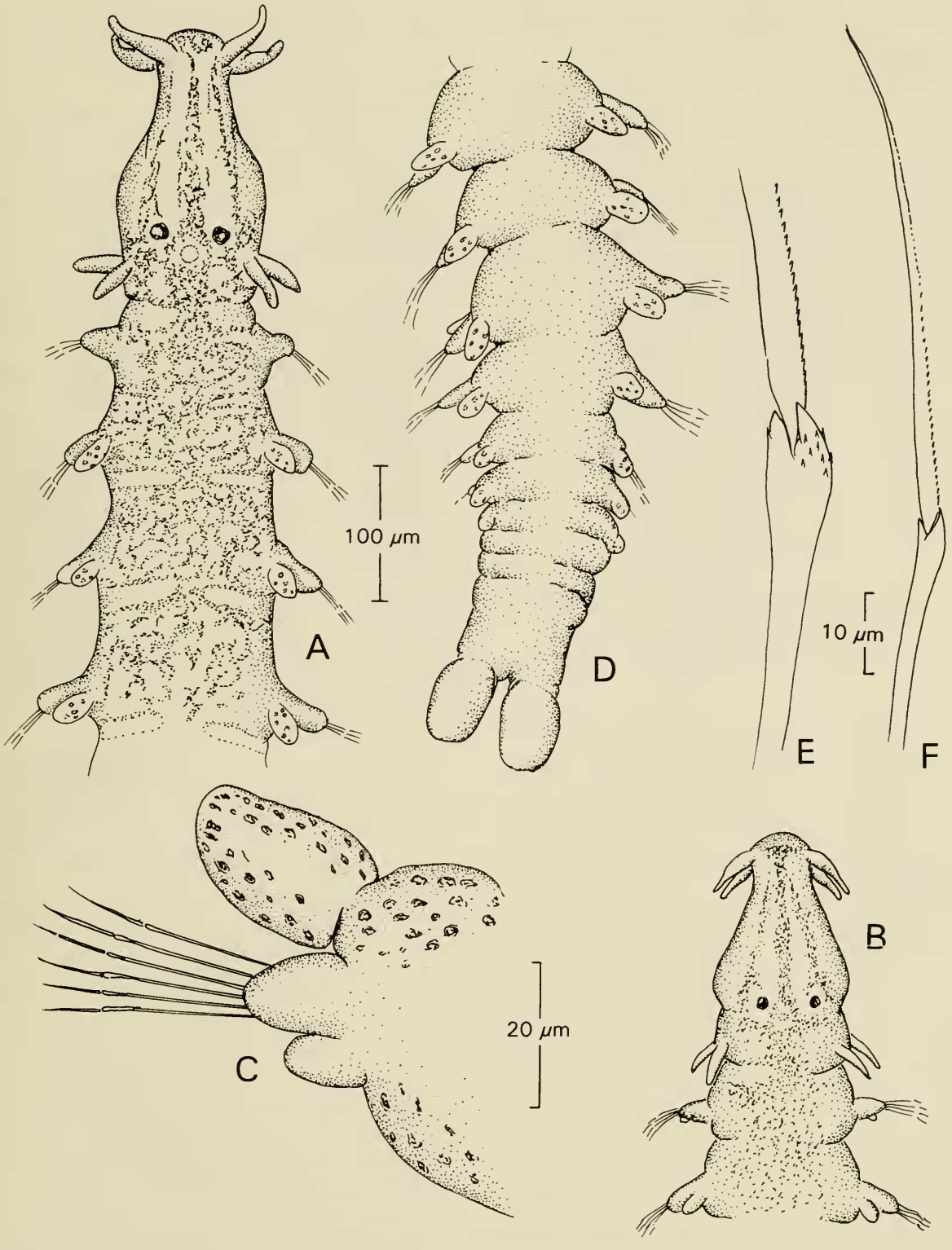

Fig. 2. *Eteone leptotes* (USNM 148686-92): A–B, anterior ends of different specimens, dorsal view; C, middle parapodium; D, posterior end, dorsal view; E–F, setae [B, same scale as A and D; E, not to scale].

148693), R-1, paratype (SBMNH 35616), R-8 (4 paratypes, LACM-AHF POLY 1611, 1620–22), 12 (paratype, USNM 148694).

Description.—A large robust species; holotype 28 mm long, 0.8 mm wide anteriorly for 110 setigerous segments; paratype (USNM 148694) 18 mm long, 0.8 mm wide for 74 setigers and regenerating posterior portion. Color in alcohol: light brown with very dark brown to black pigment on segmental rings of anterior segments, dorsal and ventral cirri, podial lobes, anal cirri, and some lighter concentrations on prostomium; middle and posterior segments with

less pigment; dark pigment concentrated in dense aggregations of small granules.

Prostomium and tentacular segment clearly separated by lateral furrow (Fig. 3A); prostomium about 1.5 times as wide as long, tapering abruptly from widest posterior portion to narrow anterior end; 4 antennae attached to expanded, rounded anterior tip; 2 subsurface eyes present, inconspicuous, each with lens and pigment cup. Small rounded nuchal papilla present posterior to eyes. Dorsal tentacular cirri slightly longer than ventral, extending posteriorly to anterior border of setiger 3 (Fig. 3A). In dissection, proboscis appearing smooth. Second segment bearing well-developed podial lobe with setae and ventral cirrus. Dorsal cirri first present from setiger 2; each dorsal cirrus thickened, inflated, oval, about as long as podial lobes (Fig. 3B); ventral cirri similar to dorsal, but with broader basal attachment.

Setae numbering about 10 per fascicle, all compound spinigers with expanded tip bearing 4 to 5 long prongs (Fig. 3D–F); blade with very fine dentition along cutting edge. Pygidium bearing two short, thickened anal cirri (Fig. 3C).

Remarks.—*Eteone pigmentata* appears to be closely related to *E. spilotus* Kravitz & Jones, 1979 described from shelf depths off the Columbia River, Oregon and Washington. Both species are darkly pigmented and have similarly shaped dorsal cirri. *E. pigmentata,* however, has a prostomium that is clearly wider than long, ventral cirri that are as long as the podial lobe, and dorsal tentacular cirri that are slightly longer than the ventral ones, whereas the prostomium of *E. spilotus* is longer than wide, the ventral cirri are always shorter than the podial lobe, and the tentacular cirri are subequal. The setae of *E. spilotus* were described by Wilson (1988) and found to have four large teeth on the end of the shaft and several smaller ones. This arrangement was unique among the species of *Eteone* that he studied. Very similar setae are present in *E. pigmentata,* thus emphasizing the close similarity of these two species.

Etymology.—The species name, *pigmentata,* is derived from the Latin, *pigmentum,* referring to the conspicuously colored body.

Distribution.—Central California continental shelf, 90–150 m.

Genus *Lugia* Quatrefages, 1866

Diagnosis.—Prostomium with 4 antennae; median antenna and nuchal papilla lacking. One pair of tentacular cirri on first segment, setae absent; second segment with 1 pair dorsal tentacular cirri, normal ventral cirrus or cirrus only slightly larger than normal, and setae; third segment with normal dorsal and ventral cirri; tentacular formula: $1 + S^{1}/_{v} + S^{D}/_{v}$ or $0^{1}/_{0} + S^{1}/_{1} + S^{D}/_{v}$. Proboscis with soft papillae. Tentacular segments more or less free from one another and from prostomium.

Remarks.—Five species of the genus *Lugia* have been described: *L. pterophora* (Ehlers, 1864) from the Mediterranean, *L. abyssicola* Uschakov (1972) from deep water off Japan and California, *L. incognita* Campoy & Alquezar (1982) from off Spain, and *L. atlantica* Villalba & Viétez (1988), also from Spain; *Lugia rarica* Uschakov (1958) from off Kamchatka has been referred to *Mystides* by Uschakov (1972). Pleijel (1991), as part of review of benthic Phyllodicidae, reviewed the species assigned to *Lugia* and determined that the types of *L. incognita* and *L. atlantica* were both juveniles of *Eulalia.* He also considered that the type species, *L. pterophora,* was *nomina dubia* because no type material was available. Pleijel (1991) noted that *L. abyssicola* was the only known species of the genus that had the tentacular characters that agreed with the original generic diagnosis. Pleijel (1991) treated the genus *Lugia* as *nomina dubia.*

A new species that agrees fully with the

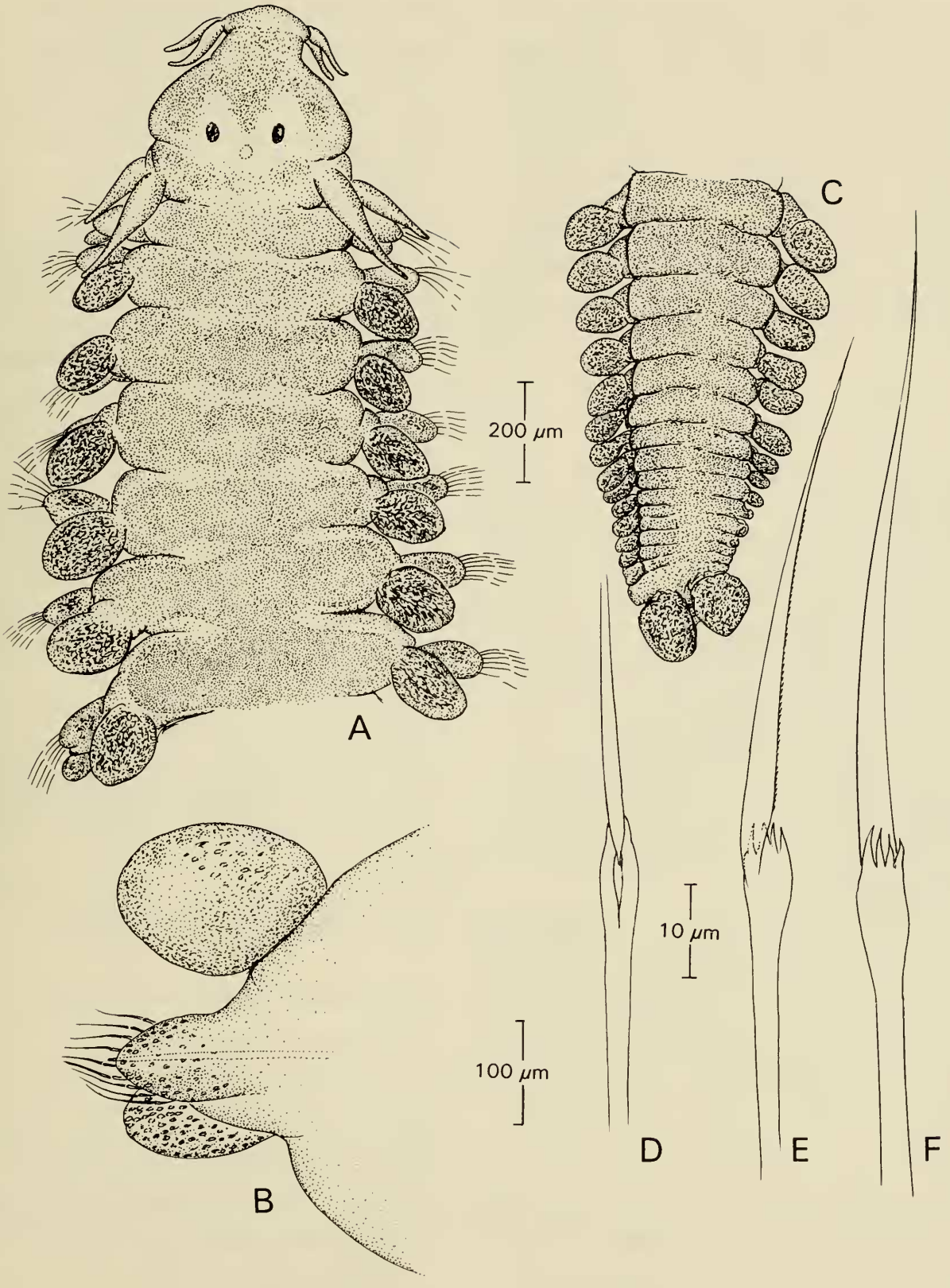

Fig. 3. *Eteone pigmentata* (USNM 148693): A, anterior end, dorsal view; B, middle parapodium, anterior view; C, posterior end, dorsal view; D–F, setae in different views.

generic diagnosis of *Lugia* has been discovered in the Santa Maria Basin. The generic diagnosis presented here follows that of Uschakov (1972) and is retained because both Uschakov's species, *L. abyssicola* and the new species, *L. uschakovi* agree with the definition. The status of the type species, *L. pterophora,* is not known and it will be necessary to collect new specimens from the type-locality before the status of the genus *Lugia* can be fully assessed.

Lugia uschakovi, new species
Fig. 4

Material examined.—California: Santa Maria Basin, Sta. PJ-1 (paratype, USNM 148695), PJ-5 (paratype, USNM 148696), PJ-7 (3 paratypes, LACM-AHF POLY 1612), PJ-8 (holotype, USNM 148697; paratypes LACM-AHF POLY 1613), PJ-10 (paratype, LACM-AHF POLY 1614), R-4 (4 paratypes, SBMNH 35613 and 35614), R-8 (2 paratypes, USNM 148698).

Description.—A small species, up to 5 mm long, 0.2 mm wide anteriorly, for about 65 setigers. Color in alcohol: light tan with brown specks on prostomium, body, and dorsal and ventral cirri.

Prostomium longer than wide, tapering anteriorly to slightly expanded apex bearing 4 short, cirriform antennae (Fig. 4A–B); eyes lacking; proboscis not observed. First segment only weakly distinguished from prostomium dorsally and ventrally, bearing a single pair of short, cirriform tentacular cirri; segment 2 first setigerous, with short podial lobe, short, cirriform dorsal tentacular cirrus and short lamellate ventral tentacular cirrus about 1½ times the length of normal ventral cirri on subsequent segments (Fig. 4B); segment 3 with normal dorsal and ventral cirri; tentacular formula: $0^{1}/_{0} + S^{1}/_{1} + S^{D}/_{v}$. Dorsal cirri short, conical, glandular, becoming larger in middle body segments (Fig. 4D); ventral cirri conical, about one-half the size of dorsal cirri (Fig. 4D). Setae arranged in spreading fascicle of 5 to 7 compound spinigers; each spiniger with broad blade bearing conspicuous denticles on cutting edge; tip of shaft with two rostral teeth, each with numerous fine denticles (Fig. 4E). Pygidium with 2 narrow, blunt-tipped anal cirri (Fig. 4C).

Remarks.—*Lugia uschakovi* from the continental shelf off California, most closely resembles *L. abyssicola* Uschakov from deep water off Japan and California in having an elongated prostomium that lacks eyes. The two species are most readily distinguished from one another by the form and length of the tentacular cirri. In *L. uschakovi* the dorsal tentacular cirri of segments 1 and 2 are both short, cirriform and of the same length. In contrast, the dorsal tentacular cirri of segment 2 in *L. abyssicola* are about 1½ times as long as that of the first segment. Further, the ventral tentacular cirrus of segment 2 in *L. uschakovi* is narrow and elongate instead of leaf-shaped.

Etymology.—This species is named for the late Professor P. V. Uschakov, Akademician of the Zoological Institute, Academy of Sciences, Leningrad, Russia, in recognition of his monographic work on the Phyllodocidae.

Distribution.—California continental shelf, in sand and silt, 90–150 m.

Genus *Protomystides* Czerniavsky, 1882

Diagnosis.—Prostomium with 4 antennae; elongate or rounded, nuchal papilla lacking; eyes present or absent; proboscis with soft papillae. All 3 tentacular segments distinctly separated from one another and prostomium; setae present from second segment. Tentacular cirri numbering 3 or 4 pairs of tentacular cirri on first 3 segments; tentacular formulae: $1 + S^{1}/_{v} + S^{1}/_{v}$ or $0^{1}/_{0} + S^{1}/_{1} + S^{1}/_{v}$.

Remarks.—Most of the known species of *Protomystides* are found in continental shelf or slope environments (Hartmann-Schröder 1963) and several are known from the deep sea (Uschakov 1972, Blake & Hilbig

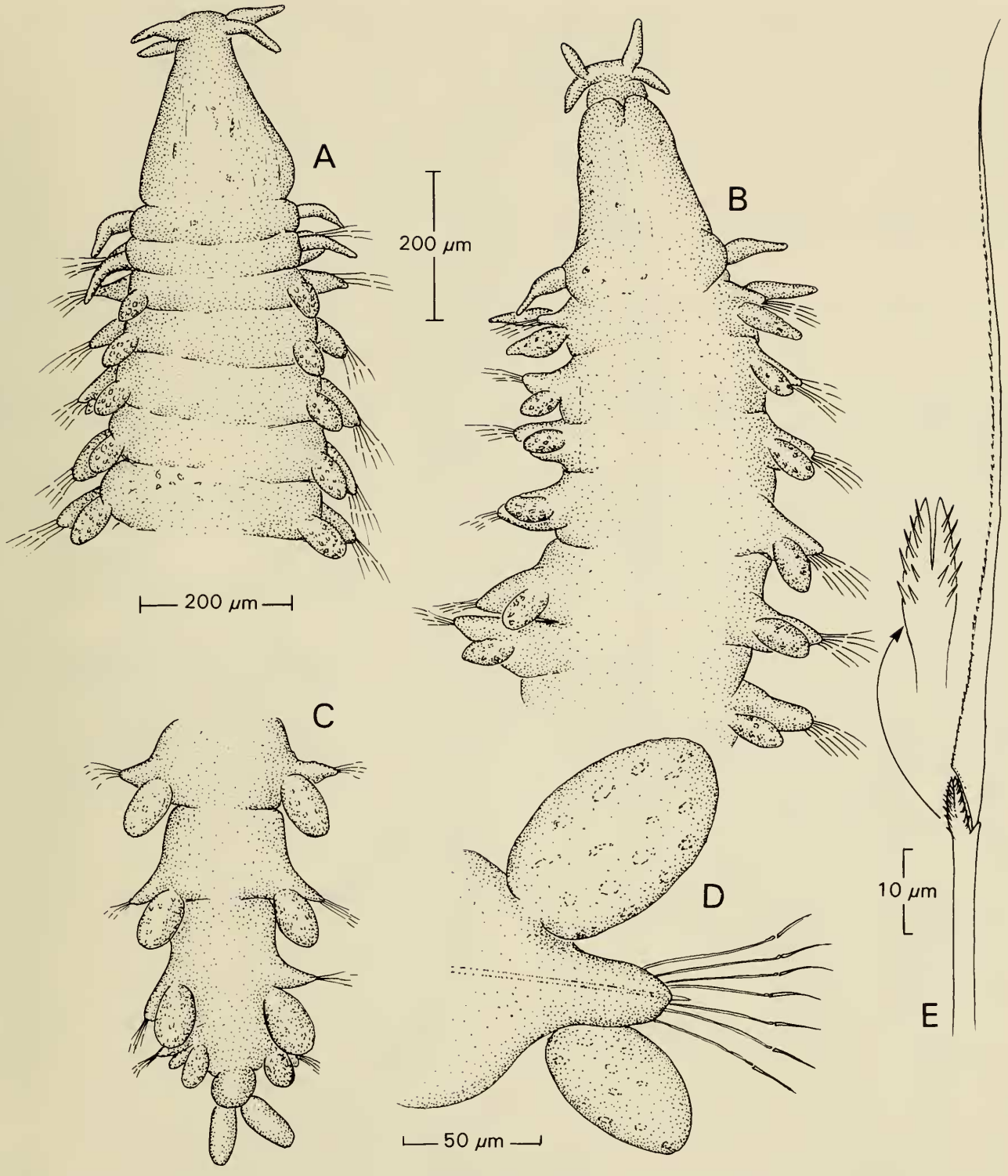

Fig. 4. *Lugia uschakovi* (USNM 148697): A, anterior end, dorsal view; B, same, ventral view; C, posterior end, dorsal view; D, middle parapodium, anterior view; E, seta [inset not to scale].

1990, Blake, unpublished). Plejel (1991) moved some species to *Eulalia* because nuchal papillae were found that corresponded to a medial tentacle. There have been few reports of the genus from North America. No species of *Protomystides* were recorded by Hartman (1968) in her Atlas of California polychaetes. In a survey of the continental slope off the U.S. Atlantic coast, three undescribed species of *Protomystides* have been discovered (Blake, unpublished); one new species has been discovered at the deep-

sea methane seep community on the Florida Escarpment and at least two undescribed species have been discovered in lower slope depths off northern California in surveys conducted during the summers of 1990 and 1991 (Blake, unpublished). Another undescribed species has been discovered in the Santa Maria Basin and is here described.

Protomystides mariaensis, new species
Fig. 5

Material examined.—California: Santa Maria Basin, off Point Buchon, Sta. 13 (holotype, USNM 148700).

Description.—A small, slender species, 11.7 mm long 0.32 mm wide anteriorly for 96 segments. Color in alcohol: light tan with dark reddish, brown pigment on dorsal and ventral cirri and on anal cirri.

Prostomium slightly longer than wide, rounded anteriorly, bearing 4 frontal antennae on elevated cushion (Fig. 5A–B); with pair of dark eyes; no nuchal papilla apparent (Fig. 5A). Segments 1 to 3 distinct, set off from one another and from prostomium; dorsal tentacular cirri of segments 1 and 2 elongate, cylindrical, tapering; ventral tentacular cirri of segment 2 broad, somewhat flattened, tapering, about 3 times larger than normal ventral cirrus (Fig. 5A–B); tentacular formula: $1 + S^1/_1 + S^1/_v$. Neuropodia short, rounded on tip, with fascicle of 6 to 8 compound setae; dorsal cirri thickened, oval, on basal cirrophore (Fig. 5C); ventral cirri smaller, elongate, rounded on tip (Fig. 5C). Setae with a large spike and numerous minute spinelets on tip of shaft (Fig. 5E–F). Anal cirri thick, with blunt tip, about 2½ times as long as broad (Fig. 5D).

Remarks.—*Protomystides mariaensis* is similar to *P. bilineata* La Greca (1947) from the Mediterranean in having an enlarged ventral tentacular cirrus on segment 2, in having eyes, and in having a prostomium that is slightly longer than wide. *Protomystides bilineata* was redescribed by Hartmann-Schröder (1963). *Protomystides mariaensis* differs from *P. bilineata* in having the body uniformly pigmented with small dark granules including very darkly pigmented dorsal, ventral, and anal cirri instead of two distinctive dark lines of pigment that extend from segment 3 down along the dorsal surface of the body. Furthermore, the dorsal cirrus of *P. bilineata* is relatively short, only as long as or slightly longer than the neuropodium, whereas in *P. mariaensis,* the dorsal cirrus is a large structure, extending for at least one-half of its total length beyond the neuropodium.

Etymology.—The species name is taken from the Santa Maria Basin where it was collected.

Distribution.—Known only from the Santa Maria Basin, in sediment with 85% silt, 197 m.

Genus *Sige* Malmgren, 1865

Diagnosis.—Prostomium pentagonal, with nuchal organs as posterior outgrowths; with 5 antennae; proboscis with numerous, mostly small papillae. Segment 1 fully developed, or reduced; with 4 pairs of tentacular cirri; ventral tentacular cirri of segment 2 cylindrical or slightly flattened; setae from segment 2; tentacular formula: $1 + S^1/_1 + S^1/_v$. Parapodia uniramous, with dorsal and ventral cirri pointed; presetal dorsal lobe of parapodia distinctly prolonged, digitiform. Rostrum of setal shaft with large number of teeth, slightly decreasing in size proximally.

Remarks.—The genus *Sige* was redefined and revised by Pleijel (1990). *Sige* differs from all other described phyllodocids having five antennae by the nature of the prolonged superior neuropodial lobes. A similar character occurs independently in *Phyllodoce longipes* Kinberg, 1866.

Sige brunnea (Fauchald, 1972)
Fig. 6

Pirakia brunnea Fauchald, 1972:53–54, pl. 4, figs. C–D.
Sige brunnea: Pleijel, 1990:169–170, fig. 4.

Material examined.—California: the continental slope off San Francisco, Gulf of the

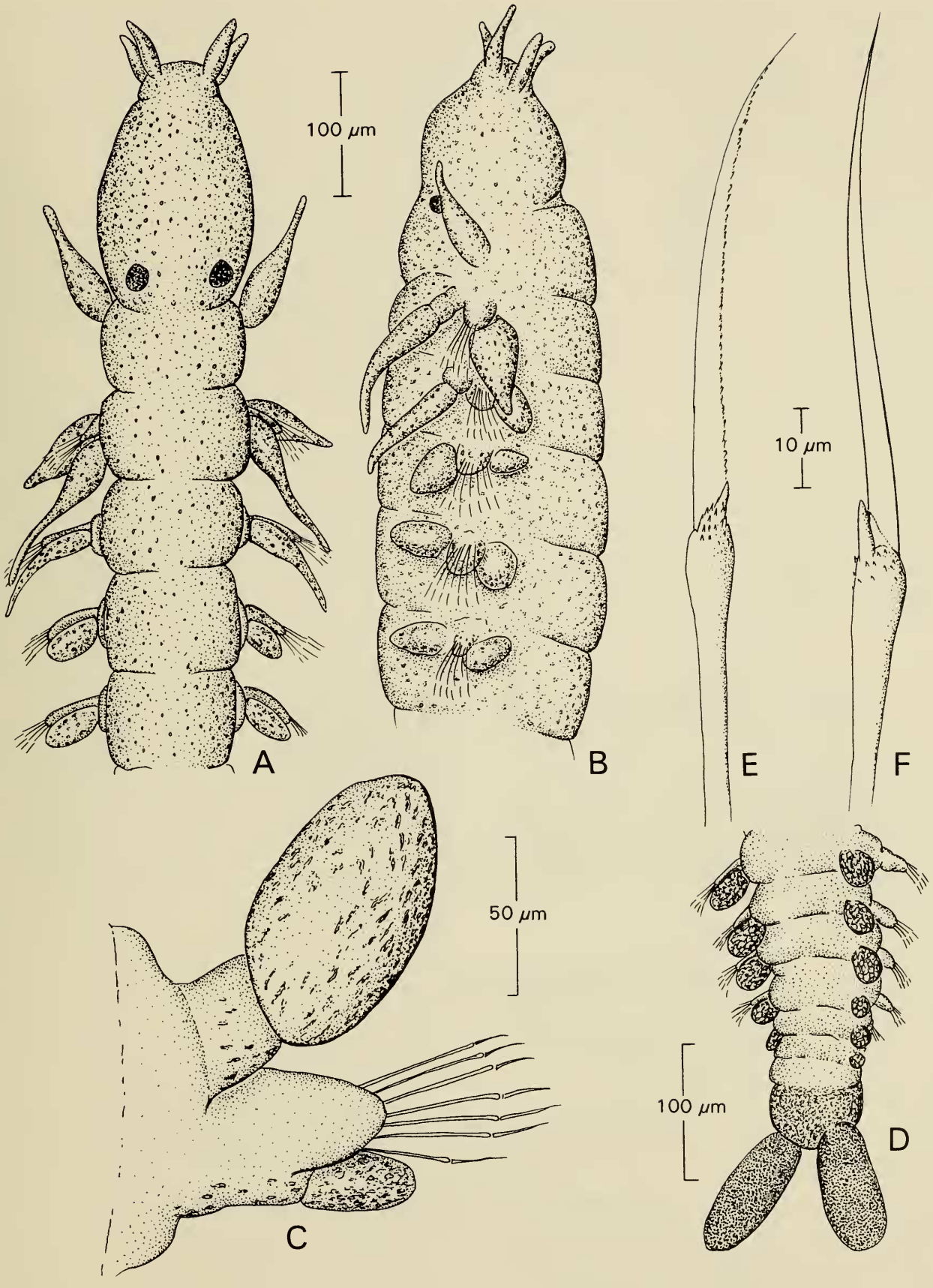

Fig. 5. *Protomystides mariaense* (USNM 148700): A, anterior end, dorsal view; B, same, lateral view; C, middle parapodium; D, posterior end, dorsal view; E–F, setae.

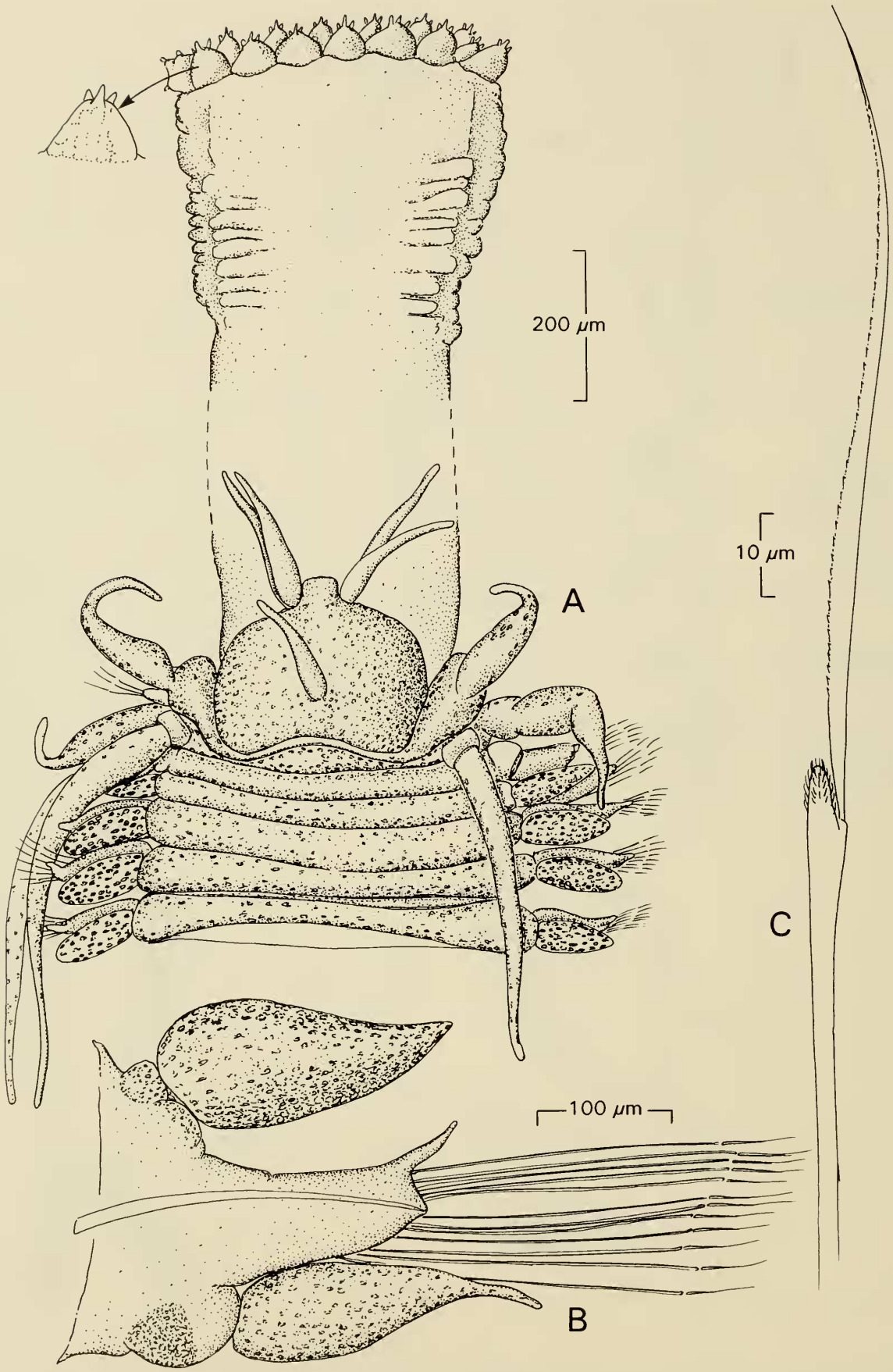

Fig. 6. *Sige brunnea* (Northern California specimen). A, anterior end, dorsal view; B, middle parapodium, anterior view; C, seta.

Farallones, 57 specimens from 12 stations in depths ranging from 1110–2955 m.

Description.—Northern California specimens mostly small, juveniles, with 14–18 segments, up to 2.0 mm long and 0.5 mm wide; 1 incomplete specimen, with 17 segments, 3.2 mm long and 0.8 mm wide; largest specimens 7–8 mm long and 1 mm wide with 42–45 segments; type specimen from Baja, California 10 mm long with 52 setigers (Fauchald 1972). Color in alcohol: tan with heavy concentrations of orange-brown pigment on prostomium, dorsal and ventral cirri, and on anterior and posterior margins of individual segments.

Prostomium wider than long, with prominent anterior projection arising between bases of frontal antennae; frontal antennae cirriform, subequal; median antenna shorter and more delicate than frontal antennae, arising from posterior one-third of prostomium (Fig. 6A). Proboscis smooth proximally, rugose distally with transverse ridges; terminal opening surrounded by 15–16 conical papillae (Fig. 6B), each with 3 projecting micropapillae; posterior margin of prostomium with broad, deep indentation.

All 3 tentacular segments complete and visible dorsally; first segment reduced, narrow dorsally; tentacular cirri all cylindrical, expanded basally, tapering apically; dorsal tentacular cirrus of segment 1 and ventral tentacular cirrus of segment 2 short, only extending posteriorly 2–3 segments; dorsal tentacular cirri of segments 2 and 3 longest, extending posteriorly 6–8 segments (Fig. 6A). Neuropodia with prominent, fingerlike superior lobe; dorsal cirri flattened, expanded basally, tapering apically to relatively sharp point; ventral cirrus more cirriform and elongate than dorsal cirri, extending for about one-third length beyond neuropodium (Fig. 6B). Setae numbering 12–20 per fascicle; each with thick, rounded rostrum on shaft bearing numerous small denticles; blade elongate, with serrated edge (Fig. 6C). Pygidium a rounded lobe; anal cirri not apparent.

Remarks.—*Sige brunnea* was originally described from deep water off western Mexico (Fauchald 1972) and has subsequently been reported from deep basins off southern California. The species is the most abundant phyllodocid in the lower slope benthos off northern California. It is most closely related to *S. pleijeli* in having elongate, tapering dorsal and ventral cirri. The two species differ most conspicuously in that the median antenna of *S. brunnea* is located in the posterior one-third of the prostomium, whereas, it is located anteriorly on the prostomium of *S. pleijeli.* In addition, the tentacular cirri of *S. pleijeli* are all short, never extending more than 2 segments posteriorly, while the dorsal tentacular cirri of segments 2 and 3 of *S. brunnea* are long, extending 6–8 segments in length.

Distribution.—Northern California to Baja California in fine, silty sediments, 1263–2955 m.

Sige pleijeli, new species
Fig. 7

Material examined.—California: Santa Maria Basin, off Point Arguello, Sta. 56, 900 m (holotype, USNM 148699).

Description.—A small species, holotype incomplete, broken into 4 parts, totalling 4 mm long and 1 mm wide anteriorly for 43 segments. Body pale, with brown pigment on dorsum and prostomium, dorsal and ventral cirri, and tips of superior presetal lobes.

Prostomium slightly longer than wide, weakly notched on anterior margin, bearing 4 long frontal antennae and 1 shorter, thinner median antennae near anterior end (Fig. 7A); eyes absent. Proboscis appearing smooth in dissection. First segment dorsally reduced, bearing pair of thick tentacular cirri; second segment first with setae, bearing broad dorsal and ventral tentacular cirri; segment 3 with dorsal tentacular cirri and normal ventral cirri (Fig. 7A). Parapodia with podial lobes bearing elongate, finger-

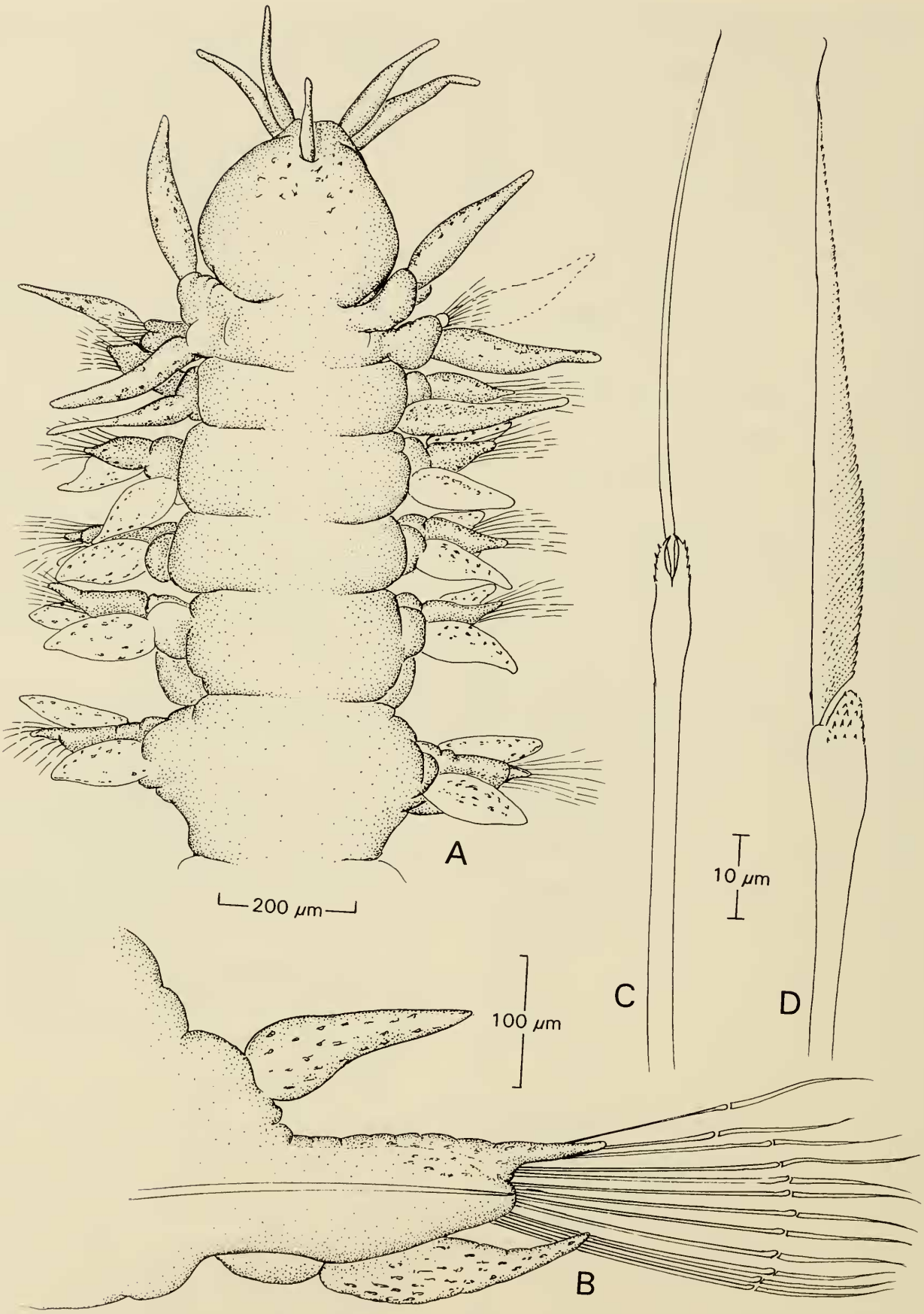

Fig. 7. *Sige pleijeli* (USNM 148699). A, anterior end, dorsal view; B, middle parapodium, posterior view; C–D, setae.

like superior lobe (Fig. 7B); dorsal cirri variable in length along body, usually shorter than ventral cirri, especially in middle and posterior body segments; ventral cirri protruding well beyond tip of inferior podial lobe, but only as long as superior podial lobe (Fig. 7B). Setae numbering 10 to 12 per fascicle, each seta with expanded tip of shaft bearing numerous short teeth on two larger rostral teeth (Fig. 7C); blade with fine denticles along one edge (Fig. 7D). Pygidium unknown.

Remarks.—*Sige pleijeli* differs from all known species of the genus in having the median antenna emerging from the anterior part of the prostomium instead of the center. In this respect the species approaches species of *Pterocirrus,* but is allied to *Sige* in the nature of the elongated superior presetal neuropodial lobe.

The species closely resembles *S. brunnea* (Fauchald, 1972), described from deep-water off Western Mexico to northern California (Fauchald 1972, Pleijel 1990, this study, see above). It differs in the position of the median antenna and in details of the shape of the dorsal and ventral cirri.

Etymology.—This species is named for Dr. Fredrik Pleijel, in recognition of his work on the taxonomy of the Phyllodocidae.

Distribution.—Known only from the upper slope depths off Point Arguello in sediment having 33% sand, 47% silt, and 20% clay; 900 m.

Acknowledgments

This study was funded by the Pacific Outer Continental Shelf Region of the Minerals Management Service (MMS), U.S. Department of the Interior, Washington, D.C., under Contract No. 14-35-0001-30484. The specimens were mostly collected as part of surveys performed by various contractors for MMS. An additional specimen of *Eteone brigitteae* was identified as part of an EPA supported survey of the continental slope off San Francisco and *Sige brunnea* was identified as part of a survey of a proposed dredged material disposal site on the continental slope off San Francisco. That study was funded by the U.S. Navy through SAIC via PRC Environmental Management, Inc., under Navy CLEAN Contract No. N62474-88-D-5086. The manuscript benefitted from comments by Brigitte Hilbig and Fredrik Pleijel.

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